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44	CLAIM SCHEDULE
45	CLAIMS
46	1. (As Amended) A method of making a gel which is not water soluble comprised of making a
47	water soluble polymer of an acrylic acid compound comprising:
48	combining an acrylic acid compound with a reactant selected from the group consisting
49	of a divalent metal salt of said acrylic acid compound, a monovalent metal salt of said acrylic
50	acid compound and mixtures thereof to form a polymer precursor,
51	combining a polymerization initiator with said precursor,
52	permitting said precursor to form said water soluble polymer, and
53	combining said water soluble polymer with a cross linking agent to form said gel;
54	wherein
55	said polymer precursor contains in the range of from about 0.65 to about 2.75 units of
56	said divalent metal salt of said acrylic acid compound per unit of said acrylic acid compound
57	and in the range of from about 0 to about 2.25 units of said monovalent metal salt of said acrylic
58	acid compound per unit of said acrylic acid compound, and
59	sald acrylic acid compound is represented by the formula CH ₂ =CR-COOH and R is
60	hydrogen or a methyl group
61	and further wherein
62	said gel is stable at temperatures up to about 450 degrees Fahrenheit.
63	2. (Original) The method of claim 1 wherein said polymerization initiator is a free radical
64	initiator.
65	3.(Canceled) The method of claim 2 wherein said water soluble polymer is combined with a
66	cross linking agent to form a gel which is not water soluble and is stable at temperatures up to
67	about 450 degrees Fahrenheit.

- 68 4. (As Amended) The method of claim 2 wherein said cross linking agent is a compound
- 69 containing a trivalent metal.
- 70 5. (As Amended) The method of claim 2 wherein said cross linking agent is a compound
- 71 containing chromium having a valence of + 3.
- 72 6. (Original) The method of claim 2 wherein said acrylic acid compound is acrylic acid, said
- 73 divalent metal salt is magnesium acrylate and said monovalent metal salt is an alkali metal
- 74 acrylate.
- 75 7. (Original) The method of claim 5 wherein said divalent metal salt is the reaction product of
- 76 acrylic acid and a magnesium compound selected from magnesium oxide, magnesium
- 77 hydroxide and magnesium carbonate and said monovalent metal salt is the reaction product of
- 78 acrylic acid and a sodium compound selected from sodium oxide, sodium hydroxide and
- 79 sodium carbonate.
- 80 8. (Original) The method of claim 7 wherein said cross linking agent is chromium acetate, said
- 81 sodium compound is sodium hydroxide and said magnesium compound is magnesium
- 82 hydroxide.
- 9. (Withdrawn From Consideration) The product of the method of claim 6.
- 84 10.(Withdrawn From Consideration) The product of the method of claim 8.

11.(Withdrawn From Consideration) A composition of matter represented by the formula 85 86 87 C=O 88 89 90 91 92 93 94

wherein

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R is independently H and -CH_{3;} X is Na, K, Li, Rb, Cs, or NH₃; Y is Be, Mg, Ca, Sr, B or Zn; a is 1, b has a value in the range of from 0 to about 2.25 and c has a value in the range of from about 0.65 to about 2.75.

12. (As Amended) A method of making a gel which is not water soluble comprised of making a water soluble polymer comprising:

forming a polymer precursor by mixing an acrylic acid compound with a material selected from the group consisting of a divalent metal compound, a monovalent metal compound and mixtures thereof,

combining a polymerization initiator with said precursor, permitting said precursor to form said water soluble polymer and combining said water soluble polymer with a cross linking agent to form said gel;

wherein

the ratio of said monovalent metal compound to said acrylic acid compound in said

precursor is an amount in the range of from about 0 to about 0.5 moles of said monovalent		
metal compound per mole of said acrylic acid compound and the ratio of said divalent metal		
compound to said acrylic acid compound in said precursor is an amount in the range of from		
about 0.15 to about 0.5 moles of said divalent metal compound per mole of said acrylic acid		
compound;		
said acrylic acid compound is represented by the formula CH ₂ =CR-COOH wherein R is		
hydrogen or a methyl group;		
said monovalent metal compound is represented by the general formula $\mathbf{X}_{\mathbf{N}}\mathbf{M}$ and said		
divalent metal compound is represented by the general formula YM2 wherein Y is beryllium,		
magnesium calcium, strontium, barium or zinc; X is sodium, potassium, lithium, rubidium,		
cesium or an ammonia group; M is oxygen, a hydroxide group or a carbonate group; z is 1 or 2,		
and N is 1 or 2; and		
said gel is stable at temperatures up to about 450 degrees Fahrenheit.		
13. (Original) The method of claim 12 wherein R is hydrogen, X is sodium, Y is magnesium, M		
is a hydroxide group, _Z is 2, and _N is 1.		
14. (Original) A method of adjusting the permeability of a subsurface formation to regulate the		
flow of water in said formation, said method being comprised of the steps of introducing into		

combining an aqueous solution of acryllc acid with a reactant selected from the group consisting of an alkaline earth metal salt of acrylic acid, an alkali metal salt of acrylic acid and mixtures thereof to form a polymer precursor,

said subsurface formation a gel which is not water soluble and is stable at temperatures up to

combining a polymerization initiator with said precursor and permitting said precursor to form a water soluble polymer and thereafter,

about 450 degrees Fahrenheit, wherein said gel is made by the steps of

133	combining said water soluble polymer with a cross linking agent to form said gel;
134	wherein
135	said acrylic acid, said alkaline earth metal salt and said alkali metal salt are combined in
136	a ratio in the range of from about 0.65 to about 2.75 units of said alkaline earth metal salt per
137	unit of said acrylic acid and in the range of from about 0 to about 2.25 units of said alkali metal
138	salt per unit of said acrylic acid.
139	15. (Onginal) The method of claim 14 wherein said alkaline earth metal salt is magnesium
140	acrylate and said alkali metal salt is sodium acrylate.
141	16. (Original) A method of adjusting the permeability of a subsurface formation to regulate the
142	flow of water in said formation, said method being comprised of the steps of introducing into
143	said subsurface formation a get which is not water soluble and is stable at temperatures up to
144	about 450 degrees Fahrenheit, wherein said gel is made by the steps of
145	forming a polymer precursor by mixing acrylic acid with a material selected from the
146	group consisting of magnesium hydroxide, sodium hydroxide and mixtures thereof,
147	combining a polymerization initiator with said precursor and permitting said precursor to
148	form a water soluble polymer and thereafter,
149	combining said water soluble polymer with a cross linking agent to form said gel;
150	wherein
151	the ratio of said sodium hydroxide to said acrylic acid in said precursor is an amount in
152 -	the range of from about 0 to about 0.5 moles of said sodium hydroxide per mole of said acrylic
153	acid and the ratio of said magnesium hydroxide to said acrylic acid in said precursor is an
154	amount in the range of from about 0.15 to about 0.5 moles of said magnesium hydroxide per

mole of said acrylic acid.

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